FEDERAL COMMUNICATIONS COMMISSION

In the Matter of
Implementation of Section 255 of the
Telecommunications Act of 1996
WT Dkt. No. 96-198

COMMENTS OF THE INSTITUTE ON DISABILITIES, PENNSYLVANIA'S UNIVERSITY
AFFILIATED PROGRAM (UAP) AT TEMPLE UNIVERSITY

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Summary of Recommendations

We urge you to consider the following recommendations:

Although the FCC only has authority to regulate transmission of
information, and not information itself, we believe that within this
mandate the FCC can do much to:

1. Insure access to the Internet

2. Insure accessibility of the interactions needed by users to
communicate with interactive telephone services.

We will describe below how this may be done. In addition:

3. We urge you require that all products in all product lines be
accessible when readily achievable, and resist requests to require
accessibility for only a few select models claimed to be most suited
for particular disabilities.

4. Finally, we urge you to require accessibility in underlying hardware
and software platforms, increasingly used by manufacturers across
products. Building accessibility into the platforms will act
proactively to lower the cost and effort to make individual products
accessible, and thereby make readily achievable many accommodations
that might otherwise be difficult to attain.

Introduction

The Institute on Disabilities at Temple University is Pennsylvania's
University Affiliated Program (UAP), one of 60 University Affiliated
Programs in the United States authorized under the Developmental
Disabilities Assistance and Bill of Rights Act of 1970. UAP's help
people with developmental disabilities achieve their fullest potential
in becoming independent, productive and fully integrated members of the
community through the provision of training, research and information.
The Institute has 25 programs, many of which are statewide. Programs
include:

- Exemplary community based services to support individuals with
disabilities who are living, learning and working in their home
communities.

- Interdisciplinary training in university and community settings to
expand awareness, enhance knowledge and skills, and develop the
resources needed for professionals, paraprofessionals, families and
people with disabilities.

- Resources and expertise disseminating information and providing
technical assistance to those who support people with disabilities.

- Applied research and evaluation activities that are used in
developing enhancing community-based programs.

The Institute on Disabilities/UAP is also the Governor's designated
lead agency for implementing the federally-mandated "Tech Act" program
in the Commonwealth -- the Pennsylvania Initiative on Assistive
Technology (PIAT). The primary goal of PIAT is develop and support
statewide entities so that assistive technology devices and services
are accessible to all Pennsylvanians with disabilities who might
benefit from their use.

Access to telecommunications technology is critical to the people we
serve. We now present the rationale behind our recommendations.
1. Internet Web Pages.
The Internet is rapidly becoming an indispensable tool for education
and employment, as well as a resource that increases quality of life
for all. But much of the benefit of the Internet is unavailable to
people with disabilities. At present, the most common and obvious
problems are experienced by people who are blind. Information on web
pages is often presented in graphical form, e.g., graphical links on
which a user •clicks• to reach other web pages.   It is usually very
simple to accommodate users who are blind: all it takes is to provide a
textual equivalent (so-called •ALT text•) for each image. This
requires far less time than drawing the image itself.   Clearly, a
company that can afford the image can afford the ALT text.

Problems are experienced by people with other disabilities as well.
Some pages have links contained in •Server Side Image Maps• requiring a
person to use a mouse, which can be extraordinarily slow or impossible
for people with some motor disabilities.   Pages may transmit
information via speech recording, which is inaccessible to people who
are deaf unless a textual transcript or captioning is provided. Pages
may contain flashing text or images, which make reading a page

difficult for people with some types of cognitive disabilities. Simple
remedies are available for these situations as well (cf. The Web
Accessibility Initiative, http://www.w3.org/WAI/)

It might appear that web pages constitute information services that the
FCC lacks authority to regulate. However, we believe that there are a
number of aspects or uses of web pages for which the FCC has authority
to require accessibility.

a. Documentation and support for telecommunications services and
equipment
b. Directories and Links
c. Representations of database information

We now examine these in turn.

a. Documentation and support for telecommunications
services and equipment

The NPRM (paragraph 75) proposes that an evaluation of whether services
and equipment are "accessible to and usable by" people with
disabilities must include an evaluation of whether documentation and
support services are accessible. We believe that such access is indeed
essential. Therefore, as suggested in the NPRM (paragraph 76), when
documentation and support is offered via the Internet, they should be
accessible. It may be possible to send the user information in an
alternative form (e.g., Braille, tape, CD-ROM, floppy disc, large
print), and such alternate presentations are also valuable. However,
web access has a number of advantages: it is immediately available 24
hours per day and 7 days per week; can be maintained to be always up to
date; can be searched electronically; and can be manipulated
electronically by people with severe motion disabilities.   These
advantages translate into job performance, income and employment;
convenience; and greater independence. No other media has all these
advantages.

We urge you therefore to require that all web based documentation and
support for telecommunications services and equipment be accessible.
b. Directories and Links.

The FCC states in its NPRM states (paragraph 39) that some services

are basic in purpose and facilitate the completion of calls
through utilization of basic telephone service facilities

The NPRM includes •computer-provided directory assistance• as one such
service, since it facilitate[s] the establishment of a transmission
path over which a telephone call may be completed, without altering the
fundamental character of the telephone service. Some web pages (e.g.,
anywho.com, and many other services listed at
http://www.yahoo.com/Reference/Phone_Numbers/Individuals/) are exactly
that: computerized telephone directory services for phone numbers and
addresses of individuals and businesses. Therefore the FCC can and
should require these directories to be accessible.

The telecommunications act applies to all types of information that can
be transmitted. A voice stream is one type of information that may be

transmitted. The content of web pages is another type of information
that may be transmitted. There are many computer-provided directories
of Internet web pages, e.g., (Yahoo, Altavista, Excite, Magellan,
Lycos). These directories furnish the addresses (URL's) of the web
pages, and therefore, like directories for voice communication,
facilitate the establishment of a transmission path over which the
information may be transmitted, without altering the fundamental
character of the information transmission. Therefore, the FCC can and
should require these sites to be accessible as well.

This argument extends to any page containing hyperlinks which, when
selected, bring the user to another page.   Any page containing links
is essentially a directory. Hence, by the previous argument, the page
must be accessible at least to the degree needed to make the links
accessible.

Another argument[1] that links must be accessible follows the
consideration that links are a defining, fundamental, and basic feature
of the web.   Since all links are basic in purpose, they must all be
accessible.

This requirement that links be accessible implies, for example, that if
a link is represented by an image, a textual equivalent of that image
must be provided for use by people who are blind. It also implies that
when links are represented by areas on an image (•image maps•), these
image maps must be accessible. This implies that the image maps be
operable via a keyboard, so that people who are blind or have severe
motor disabilities may use them. Furthermore, as noted above, all page
content needed to use the links must be accessible.

c. Database Information
Another feature of the Internet, which we feel the FCC has authority to
regulate, is the transmission of database information. Consider, for
example, a database of a manufacturers products and prices.
Typically, such the content of such databases is made accessible to
users via a Common Gateway Interface (CGI) program that creates an HTML
transmission •on the fly• encoding the information. The user sees this
as a •web page•, but in reality, it•s just a transient transmission of
information.   No page is formed until the transmission is decoded in
the user•s browsers. (It may be temporarily stored, or cached, but this
no more affects its status as transmission than, e.g., the temporary
storage of packets in packet switched voice telephony).

Since this is transmission of information, the FCC has authority to
require it to be accessible. Suppose, for example, that the database
has a text entry like •Toaster•. If this is transmitted as characters
in the HTML, the text will be accessible to people who are blind.
However, the text is transmitted as a picture of the word (i.e. a
picture of the characters T O A S T E R), it will no longer be
accessible. Transmitting the text as pictures of the characters is not
a change in form or content any more than transmitting voice digitally
instead of by analog would be a change in form or content. It is only
a change in internal encoding. Therefore, the FCC has authority to
require it to be accessible. Accessibility is readily achievable
(e.g., by attaching ALT text to the picture).

Extending this further, we believe that the FCC has authority to

regulate any web page which serves to transmit information.

We therefore urge you to require accessibility in the cases we have
described. We of course do not mean to imply that these are the only
cases eligible for regulation. We would welcome accessibility
requirements on any other aspects the Internet you feel are
appropriate.

2. Interactive Telephone Dialogs

The dialogs in interactive telephony services are typically designed
with timeouts that automatically transition the user to a different
part of the dialog or disconnect the user entirely. This is a severe
problem for two groups of users: people with movement impairments and
people who rely on telephone relay service.

People with movement impairments may not be able to press keys fast
enough to prevent the timeout from occurring.

People accessing interactive telephony dialogs though relay service
also experience problems. When they reach, for example, a voice menu,
the communications assistant needs to type the announcement to the user
and receive the customer's reply before selecting a menu item.   Often,
the menu times out, sending the communications assistant and the user
to a different part of the dialog. In that case the communications
assistant must disconnect the dialog, dial in again, reach the menu,
and proceed to the next menu, where the same problem may occur. This
can make the dialog impossible to use in practice. Even when the user
and communications assistant can manage to utilize the dialog, the
user•s time is wasted. It also increases the cost of relay service.

There is a simple solution to this problem: a requirement for an option
to lengthen or extend timeouts. This could be implemented by a special
touchtone command, or by accessing the dialog through a different
telephone number.

One might think, as obviously desirable as this requirement might be,
that it falls outside the FCC•s jurisdiction.   However, we are not
asking regulation of information itself. We are only asking regulation
of the basic means necessary to control transmission of the
information: timeouts on responses to touchtone signals. So we suggest
that this simple timeout requirement falls within the FCC's authority.

3. Require all products to be accessible when readily
achievable.

We applaud the FCC for requiring, in paragraph 170, that all individual
products in a product line be assessed to determine if accessibility is
readily achievable. However paragraph 170 appears to then encourage a
manufacturer to offer accessibility in only a select number of products
in each product line. Manufacturers may take this to support an
approach in which there is one product for each individual disability,
e.g., one for vision, one for hearing, etc.

There may indeed be cases where a particular product is useful for
people with a particular disability. However, this should not excuse
manufacturers from making other products accessible when readily

achievable.   Limiting accessibility to individual products•which
we•ll call here •select products••has a number of drawbacks.

a. Having different select products for different disabilities fails to
accommodate people who have more than one disability.

b. The select product would tend to be a more expensive model, having
features like speech recognition, which aren't always needed for
accommodation. For example, a manufacturer might have an
inexpensive phone that would only require an additional audible beep
to make it accessible to someone who is blind, or an option to press
keys sequentially instead of simultaneously to make it accessible to
a person with a motor disability. However, if the manufacturer only
had to make one model accessible then, instead of adding those
simple features to the inexpensive model, the manufacturer could
require the blind consumer to buy a more expensive model with
recorded speech prompts, and force the person with a motor
disability to purchase a model with speech recognition.   Speech
prompts and recognition can be valuable access aids, but users
should not be required to pay for them when simpler methods would
suffice.   In addition, the more expensive model would typically
have additional features which the user might not desire but which
add to the complexity of operation.

c. When there are different models in a product line, they are tailored
to different user needs, needs usually unrelated to disability.
Adapting only one model for each disability deprives the disabled
customer of the choices available to other consumers.

d. An employer, e.g., a small business, that already had non-select
equipment, would be forced to buy the select equipment to
accommodate a disabled employee, adding to the employer•s costs. It
might also add to the cost of supporting the users, since the
disabled employee would have a different model, and would require
different training.   Special procedures might also be needed for
the disabled employee because she or he is would be using different
models.

e. A non-disabled person who already owns equipment and becomes
disabled would incur the cost of buying new equipment if the model
he or she already owned didn't happen to be the appropriate select
model.

f. A person visiting a public accommodation such as a hotel which
provides telecommunications in guests• rooms•or a person simply
visiting a friend--would be less likely to find that the equipment
meets his or her needs.

4. Accessibility in Underlying Hardware and Software
Platforms

Manufacturers are increasingly reliant on hardware and software
platforms they obtain from other parties. Platforms such as UNIX, Mac
OS and Windows 95/98/NT have long been available for computers of
laptop and larger sizes. More recently, programmable platforms have
become available or been announced that are applicable to devices as
small as palm sized personal digital assistants or even pagers. These

include, e.g., the Java, Psion, PalmPilot, Windows CE, Inferno, and FLEX platforms.

It is highly advantageous to build accessibility features into these platforms. This allows access to be built from the beginning of the development and design process, an approach deemed critical in the NPRM (cf. Paragraph 3). The platforms typically provide standard user interface objects (e.g., menus, text boxes, check boxes etc.). Once the objects are made accessible, any applications using those objects inherit accessibility with little or no additional work on the part of the manufacturer.

Platforms can help make a device directly accessible to and usable by individuals with disabilities. For example, the "Swing" user interface objects components in Sun•s Java can be represented in a different modes by "plugging in" different "look and feel". Thus, as Sun has pointed out, a menu, for example, could be presented in visual form, or, by "plugging in" a speech "look and feel", be presented in speech for a user who was blind.

Specific platform features are also needed to interface to additional accessibility hardware. For example, the platform needs to communicate which user interface objects (menus, buttons, etc.) are active and what their states are. Provision for communicating this information is currently built into Sun Microsystems Java and Microsoft's Windows 95, 98, and NT.

For an equipment manufacturer, the access built into a platform can make the difference between an accommodation being readily achievable being difficult to achieve. We therefore urge you to require these access features in all platforms that may be used in Telecommunications CPE.

Footnotes

1. The argument for making links accessible is based on the observation by Janina Sajka, American Foundation for the Blind, that links are as fundamental to the operation of the web as touchtone signals are to the operation of the voice telephone system.